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Technology
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NOW is the time for a backward— and a forward— look

CHRISTMAS SEALS FIGHT TB

An End-of-the-Year Look at Progress in 1957 and Problems for 1958 page 162

A PHS Committee Report on the Place of BCG Vaccine in the U.S. page 163

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Can Isoniazid Prevent Complications in Children with Primary Tuberculosis? page 173

A Backward and a Forward Look

by James G. Stone
Executive Secretary, National Tuberculosis Association

Planning a program can never, of course, be done at any one time. Ideally, it must be a continuous, flexible, and ever-changing process. Yet, traditionally, as the old year runs out and the new year draws near, we feel a special urge to look back upon what we have done and to look ahead at what remains to be done.

What does such a backward and a forward look at the close of 1957 reveal about the tuberculosis control problem?

From a national standpoint, it is estimated that there are in the United States today 250,000 active and 550,000 inactive cases of tuberculosis, all of whom need some form of public health supervision. It is further estimated that an additional 1,200,000 persons once had tuberculosis; and because tuberculosis is a relapsing disease, some of them may need public health supervision. In addition, it is estimated that about 55,000,000 people are infected with the tubercle bacillus, and it is from among these people that new cases of the disease will develop.

That the tuberculosis problem will remain with us for many years to come is indicated in an article by Dr. Floyd Feldmann, medical director of the National Tuberculosis Association, in the October issue of the *American Journal of Public Health,* entitled "How Much Control of Tuberculosis: 1937—1957—1977?" All the statistics given in this article point to the continuing need for finding and diagnosing cases of tuberculosis and for keeping them under adequate medical supervision.

No program, of course, can be based on national figures alone. In each community, it is essential that the personnel of the tuberculosis association, the health department, and the medical profession jointly determine the extent and nature of the current local problem and then plan active steps to meet it. Of equal importance is understanding the nature of the disease and the scientific developments for controlling it.

In this issue of the BULLETIN are three articles of major significance for tuberculosis control workers: the Public Health Service's statement on BCG (page 163), the American Trudeau Society's statement on radiation (page 167), and the report from the PHS on the use of isoniazid in preventing serious complications in children with primary tuberculosis (page 173). No control program can be planned effectively without a thorough understanding of the contents of these articles.

While the widespread use of BCG is not recommended within the United States, its use should be considered by those responsible for tuberculosis control within a community where certain persons are unduly exposed to the disease and for whom other control methods may be inadequate.

The ATS report on radiation indicates the need for careful review of all equipment used in X-ray programs to insure that stray radiation damage does not offset the gains made in finding cases. Each association should also review its X-ray program in terms of the numbers of persons found with various illnesses. The association must realize, too, that finding these persons is not enough. It is essential that they be placed under adequate medical supervision and treatment.

Associations should carefully consider adding effective tuberculin testing programs to their other activities. Such programs can be used to find cases of tuberculosis, to detect the nonreactor where BCG or isoniazid prophylaxis programs are contemplated, and to determine the incidence of infection within the community on a year-by-year basis.

All activities carried on by a tuberculosis association should, of course, be developed in accordance with the five approved principles for programs contained in the Christmas Seal Contract. If, in addition, they are developed in terms of local needs and local facilities, and with a sound knowledge of the continuing scientific developments in combating tuberculosis, we can all take a forward look at our 1958 programs with a renewed faith in our ultimate victory over this dread disease.

bulletin

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STATEMENT on BCG

The Surgeon General of the United States Public Health Service has received the report of the committee appointed by him to study the place of BCG vaccination in the tuberculosis control program in this country. Dr. Esmond R. Long, former director of medical research of the National Tuberculosis Association, was chairman of the Ad Hoc committee.

Because of the widespread interest in a vaccine against tuberculosis, the BULLETIN is printing the full text of the report in the following pages. A summary of the principal points brought out by the committee appears below:

- BCG appears to be as safe as other vaccines in common use.
- The degree of protection offered by BCG is far from absolute.
- BCG vaccination confers no benefit on persons who have already been infected—that is, who are tuberculin reactors; thus its use is restricted to the tuberculin negative.
- The greatest hazard of active tuberculosis now in this country is among those ineligible for vaccination; this conclusion is based on studies showing that tuberculosis is much more likely to develop among those found positive at the time of the tuberculin testing survey (preceding the vaccination program) than among those not reacting to tuberculin.
- Although there is evidence that BCG vaccination leads to some degree of increased resistance against tuberculous diseases, the duration of such resistance has not been defined.
- Vaccinated persons become tuberculin positive, and thus the tuberculin test is lost as an indicator of recent infection in the individual, as an index of infection in population groups, as a method of locating sources of contagion, as a preliminary screening device in case finding to keep X-ray radiation to a minimum, and in the differential diagnosis between tuberculosis and other diseases simulating tuberculosis.
- In view of limited protection offered by BCG and in light of decreased risk of infection in the United States, the use of BCG should be determined by the particular circumstances in the local community or population group. Among the factors which should be considered in making this determination are the strength of the tuberculosis program as a whole, the prevalence of tuberculosis in the community, and the probable risk of infection in the future.
- Large-scale BCG vaccination programs, including routine vaccination of the newborn, are not indicated in this country.
- The advantages of vaccination outweigh the disadvantages for tuberculin negative persons who are exposed to a definite risk of infection, especially if they cannot be retested frequently with tuberculin. Such groups might include physicians and other hospital personnel and laboratory workers; persons unavoidably exposed to infectious cases of tuberculosis in the home; patients, inmates, and employees of such institutions as mental hospitals and prisons. (The committee noted that its recommendations were similar to those of the American Trudeau Society.)
- New vaccination trials in population groups in this country are not recommended, but the controlled studies already under way should be continued as long as they furnish significant information on the rate of development of tuberculosis in the vaccinated and nonvaccinated.

THE TEXT IN FULL:

A committee invited by Surgeon General Leroy E. Burney to examine the Public Health Service policy and program in the field of BCG vaccination met in Washington, June 14, 1957. Dr. Otis L. Anderson, Chief of the Bureau of State Services, acting as the Surgeon General's representative, asked the Committee to formulate a new statement and make new recommendations, if it seemed appropriate, on the use of BCG vaccination as a public health procedure, and on further research as to its value. At Dr. Anderson's request the Committee selected one of its own group as chairman of the meeting.

A previous advisory committee considered the question of BCG vaccination in September, 1946, and a statement on the use of BCG, consistent with the recommendations of that committee, was issued by the Public Health Service in August, 1950. In this statement the Public Health Service took the position that additional research on the effectiveness of the vaccine was required, that indiscriminate use of BCG might divert attention from other control measures, that mass BCG vaccination programs were not indicated in this country, and, finally, that vaccination should be limited to persons with unusually great exposure to tuberculous infection.

It appeared to the present Committee that a logical evaluation of BCG vaccination, and the formulation of recommendations on the policy of the U.S. Public Health Service, could be made only after consideration of (1) the present status of the tuberculosis problem as a whole, (2) facts on BCG vaccination that have become available since the last statement issued by the Public Health Service, (3) the contribution that might be expected from BCG in diminishing the problem in the light of the new facts, and (4) the advantages and disadvantages of various public health applications of BCG.

The Committee recognized that nearly all aspects of the tuberculosis problem have undergone great changes during the past decade. The mortality rate has decreased from about 30 per 100,000 in 1946, when the previous advisory committee met, to less than 10 in 1956. The morbidity rate has also declined, although apparently not so rapidly. At the same time the consequences of tuberculosis morbidity have been lessened by the effectiveness of the antimicrobial agents, particularly isoniazid. The Committee members agreed that further research on the effectiveness of

antimicrobial drugs in first infection is desirable.

It was noted that the infection rate, as reflected in numerous tuberculin testing surveys, has reached a new low. While precise information is not available, it is probably safe to say that in the United States as a whole, *less* than one-half of 1 per cent of the population are being newly infected with tubercle bacilli each year, although the rates are higher than this in certain areas. However, the available evidence indicates that in all areas the risk of infection is decreasing at an accelerating rate.

The basic premise for use of BCG vaccine is that the changes produced in the host by vaccination will protect in some measure against the hazards resulting from tuberculous infection. It is generally accepted that vaccination confers no benefit on persons who have already been infected, and that its use should, therefore, be restricted to non-infected persons, i.e., non-reactors to tuberculin. If, as widely believed, the protection afforded by vaccination tends to wane with the passage of time, the ideal period for vaccination is a few months prior to exposure to tuberculosis. Ordinarily it is not possible to predict exposure so accurately; in certain occupational groups, on the other hand, probable exposure can be assumed.

When vaccination is offered to general population groups, it has been customary to limit it to the younger segments, in which there has been as yet little opportunity for infection. In practice, vaccination is carried out after tuberculin testing. Among the very young, in the United States, the frequency of reaction to tuberculin is low, and lowest in these in an environment in which exposure is minimal. Since in the early years of life substantial changes in environment are relatively infrequent, freedom from exposure in the immediate future can be predicted for the majority of those found negative. In older age groups subjected to tuberculin testing, the proportion of reactors to tuberculin is usually higher, so that fewer persons in the group are eligible for vaccination.

Hazard Greatest Among Positives

Recent well-controlled studies have shown that, with the passage of time, tuberculous disease is more likely to develop among those found positive at the time of tuberculin surveys than among those not reacting. In other words, the greatest hazard in a surveyed group at any age exists among those found positive to tuberculin and who, therefore, would not be vaccinated. It was pointed out that, accordingly, chief attention from the point of view of tuberculosis control should be devoted to those found to react to tuberculin in any survey.

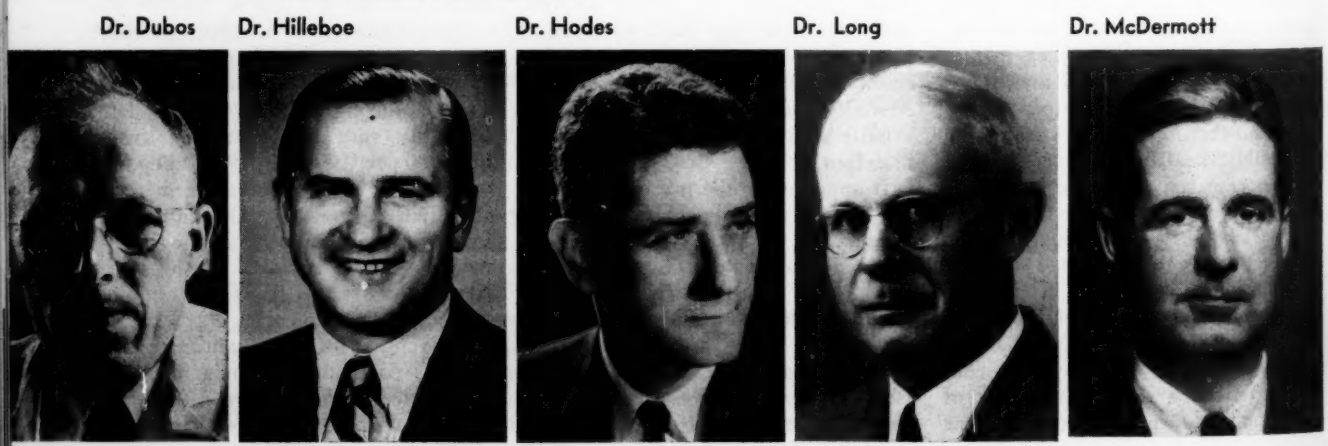
It was recognized as obvious, however, that any measures that could be taken to prevent development of infection in the first place should be part of every tuberculosis program.

The value of BCG vaccination in controlling tuberculosis in the United States has been a matter of controversy in recent years. The Committee recognizes arguments both for and against its more general application. Several studies have brought forth convincing evidence that vaccination in man with a strain of BCG known to be of high potency leads to some degree of increased resistance against tuberculous disease. The duration of such resistance has not been defined, but several reports indicate a lower incidence of development of tuberculosis in vaccinated than in control groups several years after vaccination. It has been postulated that in such groups the effect of vaccination is reinforced by subsequent small spontaneous infections which the vaccinated persons overcome.

The Committee noted, however, that accurate studies have not been made on the efficacy of revaccination with BCG, and believed that, on the whole, present information is inadequate on the persistence of increased resistance from BCG vaccination. The members felt that BCG appears to be as safe as other vaccines in common use, but noted that several cases of progressive disease and death attributable to BCG have been reported.

In considering disadvantages attendant upon use of BCG vaccination, the Committee members stressed the value of the tuberculin reaction as an index of exposure to tuberculosis. Since BCG vaccination, in order to be considered satisfactory, converts

THE COMMITTEE MEMBERS:



non-reactors into reactors to tuberculin, the procedure makes it impossible to use the tuberculin test (1) as evidence of recent infection in the individual, (2) as an index of infection in population groups, (3) for the location of sources of contagion, (4) as a preliminary screening device prior to chest X-ray examination in the diagnosis of tuberculosis, or (5) for differential diagnosis in diseases with some similarity to tuberculosis.

These considerations were believed to be of increasing importance in the light of the current continuing decline in the prevalence of infection and manifest increasing concern over the hazards of excessive radiation by X-rays. The Committee agreed that if the protection afforded by vaccination were absolute and persistent, the loss of the tuberculin test for all these purposes would be outweighed by the protective effect of the vaccine; but since all studies indicate that the protection is imperfect, the loss of the index value of the tuberculin test appeared significant.

False Sense of Security

The Committee expressed the opinion that wide use of BCG vaccination as a public health method would be likely to divert personnel and funds from other tuberculosis control activities. The Committee believed, too, that vaccination may lead to a false sense of security, which could result in failure to observe precautions that otherwise would be taken.

The Committee gave careful attention to the numerous investigations carried out since the 1946 conference on BCG vaccination, which have shown a wider range of variation in the reported efficacy of BCG than was evident at that time. A range of efficacy from 0 to 80 per cent among study populations eligible for vaccination has been reported from various controlled studies. It was noted that in almost all of the several reports on the follow-up of large groups of persons vaccinated with BCG, some cases of disease and death from tuberculosis are recorded among vaccinated persons.

In one of the studies in which the highest efficacy was recorded, the investigation reported by the Tuberculosis Vaccines Clinical Trials Committee to the Medical Research Council in Great Britain, in which vaccination was carried out with the Danish official BCG vaccine, there were 13 cases of definite tuberculosis in a vaccinated population group of 14,100 within two and a half years after initiation of the follow-up. In the U.S. Public Health Service investigation in Puerto Rico, carried out with the BCG vaccine produced by the New York State Department of Health, 78 cases of tuberculosis occurred among approximately 50,000 vaccinated persons in five and a half years.

These figures indicate that the degree of protection afforded by the vaccine is far from absolute. In the Medical Research Council study, the morbidity rate among the vaccinated was only one-fifth of that reported for a nonvaccinated group of 13,200 studied concurrently; in the Public Health Service study, the rate was two-thirds of that recorded for some 27,000 controls concurrently studied. A striking finding in both studies was a high subsequent incidence of tuberculosis morbidity in persons strongly sensitive to tuberculin at the time of survey, who were not eligible for vaccination and therefore not in either the vaccinated or the control group.

No Significant Difference

Of equal pertinence to the task of the Committee were the results of the Public Health Service's trial of BCG vaccination in Muscogee County, Georgia, and Russell County, Alabama, in which vaccination was carried out with the BCG vaccine produced by the Research Foundation, in Chicago, Illinois. In this community study, there was no statistically significant difference in the tuberculosis developing among vaccinated and nonvaccinated persons after six years of observation. Furthermore, the tuberculosis that developed among persons who were eligible for vaccination by the ordinary criteria was an extremely small fraction of the total tuberculosis problem of the community during the follow-up period.

The members of the Committee were particularly impressed by the apparent variability in vaccinating potency of different BCG strains, as shown by laboratory studies as well

Dr. Middlebrook

Dr. Payne

Dr. Perkins

Dr. Schmidt

Dr. Yerushalmy

as by the diversity of results in large field trials. It was noted that critical analytical studies have been made of the value of only a small number of the "lots" of BCG vaccine that have been used, and that no agreement has been evident as yet in different research groups on the choice of BCG strains for vaccination. It was believed that the significance of apparent variations in potency of strains, with respect to the induction both of tuberculin allergy and resistance to infection, is not yet understood, and that the implications of such variations have not yet been taken sufficiently into account in current studies. As one member of the Committee expressed it, "The label BCG does not define a product of predictable and standard properties and activity."

In considering the public health aspects of BCG vaccination programs, the Committee noted that the tuberculosis mortality rates for the white population in the United States, in which vaccination has been practiced on a very small scale only, are much like those in white populations abroad, in which vaccination has been carried out on an extensive scale. They were even more impressed by the fact that reductions in mortality have been as great in certain European countries that do not practice BCG vaccination as in countries of comparable size and economic state in which BCG vaccination is widely used.

With all of these considerations in mind, the Committee did not believe that a categorical statement on the degree of protection afforded by BCG vaccination could be made.

The Committee, while unanimously agreeing that BCG confers some protection against tuberculosis, considered at length whether or not the amount of protection provided by vaccination is sufficient to justify greater use of BCG in the United States in the light of current general progress in tuberculosis control and in the face of the several disadvantages noted. In the absence of consistent and convincing evidence of persisting protection and in the light of a greatly decreased risk of infection and its consequences, the Committee expressed the opinion that the use of BCG should be determined by the particular circumstances obtaining in a local community or population group, and that the determination should be based on a wide variety of factors, among the most important of which will be the strength of the tuberculosis program as a whole, the prevalence of tuberculosis in the community at the time, and the probable risk of infection in the future.

Members of the PHS's Ad Hoc Advisory Committee on BCG were Dr. Esmond R. Long (chairman), former director of medical research for the NTA; Dr. Rene Dubos, of the Rockefeller Institute for Medical Research; Dr. Herman Hilleboe, commissioner of health, New York State; Dr. Horace L. Hodes, New York pediatrician; Dr. Walsh McDermott, editor, *The American Review of Tuberculosis and Pulmonary Diseases;* Dr. Gardner Middlebrook, director of research, the National Jewish Hospital, Denver; Dr. Rufus Payne, of Eugene Talmadge Memorial Hospital, Augusta, Ga.; Dr. James E. Perkins, managing director, National Tuberculosis Association; Dr. Leon H. Schmidt, director, The Christ Hospital Institute of Medical Research, Cincinnati; and Dr. Jacob Yerushalmy, professor of biostatistics, University of California School of Public Health, Berkeley.

In general the question will come up for decision chiefly in groups or communities where exposure is high and weakness in other means of control is recognized. It was believed by the Committee that the responsible officials in such communities and groups should be sufficiently well informed on the advantages and disadvantages of BCG vaccination, through currently available reports, to make an intelligent decision.

The Committee is convinced that large-scale BCG vaccination programs, including routine vaccination of the newborn, are not indicated in this country. It is believed, however, that the advantages of vaccination outweigh the disadvantages for tuberculin-negative persons who are exposed to a definite risk of infection, especially if they cannot be retested frequently with tuberculin. Under certain local circumstances, the following individuals and groups are examples of suitable subjects for BCG vaccination:

1. Physicians, nurses, medical and nursing students, laboratory workers, and hospital employees. (It was noted, however, that if a hospital has established an adequate tuberculosis control program, very little exposure to tuberculosis will occur in that institution.)
2. Persons unavoidably exposed to continued contact with infectious cases of tuberculosis in the home.
3. Patients, inmates, and employees of institutions such as mental hospitals and prisons, in which case-finding programs indicate that exposure to tuberculosis is likely to be high.

The Committee noted the fact that in September, 1956, after review of material similar to that studied by the present Committee, the Committee on Administrative Problems of the American Trudeau Society decided that the current statement of the Society, formulated in April, 1949, was not in need of revision. That statement recommended use of BCG vaccine in groups similar to those listed in the foregoing paragraph, and recommended continued emphasis on general measures of tuberculosis control. The Committee noted other recent statements of similar import by a number of investigators and groups with long experience in BCG vaccination.

The Committee finally considered the desirability of further studies in the field by the Public Health Service. It is the consensus of the Committee that, in view of the apparent low risk of tuberculosis among present nonreactors in the United States, new investigations on the value of BCG cannot be made without excessively large study populations. For this reason, the Committee feels it is unwise to recommend that the Public Health Service initiate new vaccination trials. However, it recommends strongly that the controlled studies on population groups already started be carried on for as long a period as they furnish significant information on the rates of development of tuberculosis in the vaccinated and control groups now under observation.

ATS STATEMENT on RADIATION

The Executive Committee of the American Trudeau Society met in Chicago, October 8, 1957, to consider the question of radiation in relation to the use of chest X-rays in finding and diagnosing thoracic diseases and to draft a statement for the guidance of tuberculosis associations in the conduct of case-finding programs.

In its deliberations, the committee had the technical advice of Dr. Richard H. Chamberlain, professor of radiology, University of Pennsylvania School of Medicine; Dr. Clinton Powell, chief, radiological health medical program, U.S. Public Health Service; and Dr. Asher J. Finkel, health director, Argonne National Laboratory, Lemont, Ill.

The text of the statement prepared by the committee follows:

The X-ray examination of the lungs has been one of the most important and dependable tools of the thoracic physician and surgeon and public health worker in early diagnosis and treatment of unsuspected chest disease.

The chest X-ray has for half a century been an important part of all tuberculosis case-finding programs. The National Tuberculosis Association in 1955 summarized the modern usefulness of the technique of chest X-ray surveys with far-reaching principles concerning its application. This manual ("Chest X-ray Screening Programs in General Hospitals," NTA, 1955) stressed several things:

- Tuberculosis, lung cancer, nontuberculous pulmonary infections, intrathoracic tumors, and cardiovascular abnormalities are conditions whose lasting cure depends upon early diagnosis of the often unsuspected lesion by chest X-ray techniques.
- Immediate follow-up and proper handling of every thoracic abnormality is necessary.
- The general hospital X-ray admission program as a survey technique is most productive in turning up previously unsuspected thoracic disease.
- The relative costs of the various types of X-ray machines depending on the number of films taken were presented. This information is a contribution from the United States Public Health Service.

In June of 1956 the National Academy of Sciences, National Research Council, called attention to the effects of X-ray radiation particularly resulting from atomic bomb explosions. Their studies covered the "Biological Effects of Atomic Radiation" especially as it affects the human body and its reproductive organs. Later reports discussed the possibilities of effects of body radiation upon the blood system, with leukemia as a delayed effect. All these subjects remain controversial, but this discussion on radiation effects has led everyone—scientist, physician, and layman—to think deeply concerning them and to evaluate programs of action based thereon.

The problem is therefore one of weighing the benefits from X-ray diagnostic procedures against the liability of harmful effects of radiation exposure.

There are few good human data on this aspect of low doses of ionizing radiation, and most of the factual information has come from animal experimentation. Nonetheless, the unknown as well as the known effects of radiation exposure impose a definite responsibility to the public.

In people who are ill, the needs for radiological studies are great and deserve more weight on the side of diagnostic benefits as opposed to possible hazardous effects of radiation. In any case, all radiation exposure that serves no useful purpose should be scrupulously avoided.

It is well recognized concerning X-ray machines that there is no standard pattern of radiation exposure delivered by any standard type of unit. It has been shown that each X-ray unit, photofluorographic or conventional, delivers its own peculiar amount and type of X-ray radiation. Therefore each machine must be tested individually and carefully for its own output of radiation and must be provided with all necessary safety devices for minimizing gonadal and general body radiation. This must be done by persons trained in radiological protection.

1. Who Should Get X-rays? The American Trudeau Society has taken leadership in emphasizing that there is no virtue in the taking of chest roentgenograms per se. X-rays are only justified if they lead to the detection of previously unsuspected, clinically significant, curable lung disease, followed through with appropriate therapy.

Therefore, it is essential for those engaged in the detection of pulmonary disease to evaluate their yields on a

continuing basis. These yields vary from one community to another and from time to time but, in general, are higher among certain population segments. Among these high-yield groups, periodic chest X-rays are the most practical approach. Among infants, children, young adults, prenatal patients, and especially young diabetics, the tuberculin test should be used as the preliminary screening technique whenever possible, and the tuberculin reactors should have X-ray examinations of the lungs for the detection of tuberculosis. The nonreactors among these groups should be rechecked periodically by means of the tuberculin test. However, aside from screening considerations, every child should have a single X-ray film for the identification of congenital or developmental defects and nontuberculous disease, and for comparison with any films taken later in life. In the younger age groups particularly, only those X-ray units that meet modern requirements for radiation protection should be used.

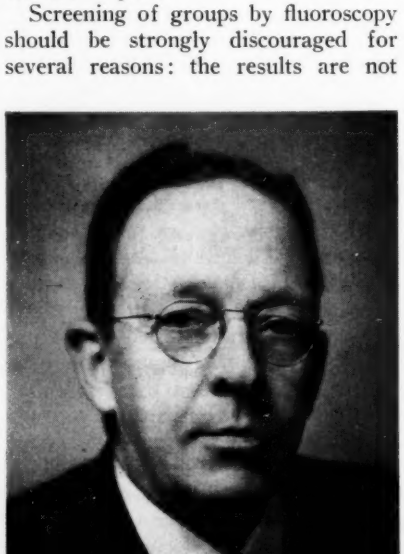
2. What Type of Apparatus Should Be Used? Three types of equipment are in general use for chest X-ray survey purposes. Other factors being equal, the amount of radiation necessary for a satisfactory chest film is least with a standard 14″ by 17″ film in a cassette with intensifying screens. Compared with the standard 14″ by 17″ X-ray unit, there is approximately three to five times more radiation using the mirror optics photofluoroscopic unit and about ten to twenty times the radiation exposure when using the standard lens camera photofluorographic machine. This in well-protected X-ray units is still a very small amount of radiation, but these figures may be multiplied by 100 if the apparatus is not properly equipped with protective devices.

For practical purposes, these differences in radiation requirements appear to be of less relative importance at this time than the proper operation of equipment with adequate protective devices. Where the number of survey films taken per day is small or when modern protective devices have not been installed, it is better to use standard 14″ by 17″ films, even though the cost per film is higher than for a photofluorographic unit.

Where the number of films taken per day is large, or the machine must be moved frequently, as in a mobile unit, a properly equipped photofluorographic unit is the most practical apparatus at the present time. The increased amount of radiation involved in such photofluorographic units is small and is warranted in those segments of the population where the yield of new cases is significant.

Whenever the purchase of a new photofluorographic unit is contemplated, the mirror optical system camera is to be preferred over the ordinary lens system. The reduction in radiation with this device and the superiority of results will justify a substantial difference in price.

Screening of groups by fluoroscopy should be strongly discouraged for several reasons: the results are not



Theodore L. Badger, M.D., president of the American Trudeau Society, presided at the ATS Executive Committee meeting to discuss the effects of radiation.

accurate for diagnostic purposes; there is no permanent film record of the examination; and the radiation exposure involved both for the subject and examiner is excessive. However, special fluoroscopic examination may be indicated for specific diagnostic purposes and for the determination of the dynamics of the chest.

Laminograms, even with properly operated equipment, can result in a substantial radiation exposure to the chest, and should be used only for special diagnostic problems.

3. The Nature of Radiation Effects. Populations are being exposed to a variety of radiations from natural and artificial backgrounds as well as from medical diagnostic and therapeutic procedures. The average exposure received by the population today from all sources appears to be at a lower level than that which has been demonstrated to produce harmful effects in humans and experimental animals.

At this time the effects of small doses of radiation are unknown. Speculation is based on statistical calculations projected downward from the known effects of higher doses used in experimental animals and derived from atomic explosions. These effects from higher doses may manifest themselves as genetic changes resulting from radiation of the gonads, or general body effects with leukemia or other delayed pathological changes as rare sequelae. It should be emphasized that unnecessary radiation should always be avoided by conducting medically supervised programs with properly operated equipment.

4. Techniques for Minimizing Exposure. Those responsible for screening programs should ensure that steps have been taken to maintain the radiation dose at the lowest practicable level both to those being examined and to equipment operators. Techniques are available to accomplish this at nominal cost and should be applied wherever not already in use. These techniques include:

a. *Proper coning.* This is particularly important in reducing the gonadal dosage. Cones should be rectangular in shape and should limit the primary beam to an area no larger than that visualized on the film. Adequate cones should be continuously mounted on all units. Misalignment of the cone results in "cone cutting" of film. Technicians often remove cones or use too large an aperture to avoid "cutting" the film. This should never be permitted. Precise and accurate alignment, rather than removal of the cone, is the proper remedial procedure in this case. Mechanical linkage of the tube and film holder or the use of light

localizers are useful where feasible.

b. *Proper filtration.* This should be assured by permanently mounting at least 2 millimeters of aluminum filtration, or its equivalent, in the primary beam. When technical factors permit, filtration up to 3 millimeters should be used, and this is better than 2 or 2.5 millimeters.

c. *Shielding.* Proper shielding of both the direct beam and the scatter radiation should be provided. Its adequacy for protection of equipment operators, their assisting personnel, waiting patients, and the general public should be assured by adequate radiation surveys.

d. *Adequacy of tube housing.* This is a protective barrier and should be checked by a radiation survey. In addition to its over-all effectiveness, special attention should be paid to the possibility of small defects which will result in leakage of direct radiation in directions other than that of the useful beam.

e. *Technical factors.* Significant reductions in patient and operator dosage can often be obtained by use of higher kilovoltage techniques. Optimal operating voltage will vary with equipment. Higher speed screens and films should also be employed.

f. *Tube-to-skin distance.* This should be kept as high as possible. Five- or six-foot distances are desirable.

g. *Exposure control.* These should be so arranged that operation of the equipment is impossible except with the operator behind a suitable protective barrier.

In addition, more advanced and expensive technical improvements can result in a reduction of patient and operator dosage. Examples of these improvements are mirror optics and electronic image amplification. Widespread applications of such techniques can be deferred, however, pending a concerted effort to accomplish the modifications noted above, where needed. Early implementation of recommendations regarding coning and filtration should be undertaken without awaiting availability of complete radiation surveys.

Where not already accomplished, suitable instruction of personnel in optimal operating and film processing techniques should help keep diagnostic value high and minimize the necessity for re-examinations.

The principles outlined above are equally applicable in individual diagnostic studies. When fluoroscopy is involved, additional emphasis should also be placed on minimum field size, adequate adaptation to darkness, and tube-to-table-top distance, which should be at least 18 inches.

Conclusions

The kernel of the problem of radiation effects is the awareness by the public, physicians, and tuberculosis workers that the whole subject is one of weighing the benefits of radiography against the known and unknown effects of radiation exposure. It should remain clear that radiation that serves a useful and necessary purpose is warranted, but it should be used with the best protective devices to minimize exposure. Putting the chest X-ray examination in its proper perspective, the radiation exposure to the gonads or body from a single chest film, using a well-monitored machine, is infinitesimal when compared to the commonly used X-ray diagnostic procedures involving the gonadal areas.

Members of the American Trudeau Society Executive Committee are Drs. Theodore L. Badger (chairman), Katharine R. Boucot, Ejvind P. K. Fenger, Daniel E. Jenkins, Roger S. Mitchell, Paul C. Samson, and Joseph B. Stocklen.

Recommendations

Several specific recommendations from this report can be made to the constituent associations of the National Tuberculosis Association and American and State Trudeau Societies.

1. Chest X-ray surveys must be continued not only in the field of tuberculosis, but in the detection of cancer, industrial thoracic disease, acute and chronic nontuberculosis infections, chest tumors, and cardiovascular abnormalities.

2. Conventional and photofluorographic X-ray units may be used to survey segments of the population which are expected to show a high yield of thoracic disease, but the X-ray machines must be equipped with adequate protective devices.

   a. The purchase of certain protective devices should be made *now* without waiting for the more complete monitoring of the unit. These include proper cones, proper filtering, shielding devices for subject and operator, and exposure controls of automatic nature.

3. Tuberculin testing in infants, children, young adults, prenatals, and young diabetics should be developed as a primary guide to tuberculosis contacts and as one case-finding method. X-ray of the chest, for the detection of tuberculosis, could then be limited to those with a positive tuberculin test.

4. Reassessment of case-finding programs should be done concerning those segments of the population most deserving of chest X-ray surveys or tuberculin testing.

5. The instruction and training of personnel should include information concerning the protective devices for all types of X-ray units.

6. Education of health workers and the public should be undertaken with a positive program incorporating this new and more optimistic look concerning chest X-ray examination. It should be made known to all concerned that effective steps have been taken to minimize direct and scatter radiation exposure involved in taking chest X-rays. A constructive approach is in order, to emphasize the continuing usefulness and the need for early diagnosis and treatment of all forms of pulmonary disease.

7. Members of the American Trudeau Society and constituent associations of the National Tuberculosis Association might well assume an active role in assisting in and promoting the training of personnel skilled in radiation protection. Such a program could develop and assume a most important role in assuring the confidence of the public that the leadership of these organizations in the field of thoracic disease carries with it the certainty of minimum radiation exposure and the maximum protection wherever chest X-ray examinations are used in survey and diagnostic work under their sponsorship.

Seattle Public Library

DEC 18 '57

Smoking and TB

Recent surveys indicate a correlation between TB deaths and smoking

Statistical evidence linking the rise in lung cancer to the increase in cigarette smoking in recent years reveals, too, a higher death rate from tuberculosis among smokers than among those who do not smoke.

An analysis of death rates in relation to smoking habits among 187,783 men undertaken by the American Cancer Society revealed an "excess" of 2,665 deaths among smokers during the 44 months covered by a report released to the American Medical Association last June and summarized in the fall issue of *Cancer News*. "Excess" deaths, according to E. Cuyler Hammond, Sc.D., director of statistical research for the cancer society and author of the article, are the number of deaths among the smokers in excess of the number among an otherwise comparable group of nonsmokers. Of the 11,870 persons who died from all causes, 7,316 were smokers.

Although there were few deaths from tuberculosis in the group surveyed, the analysis shows that the rate of tuberculosis deaths was more than twice as high among the smokers as among those who did not have the habit and more than four times as high in the case of lung cancer.

A study in Great Britain, undertaken to find out if there was an association between smoking and pulmonary tuberculosis, revealed that there were many more moderate and heavy smokers than nonsmokers and light smokers among tuberculosis patients in Birmingham, England. The study is reported by C. R. Lowe, M.D., in the November 10, 1956, issue of the *British Medical Journal*.

Dr. Lowe also found that there were more heavy smokers among the tuberculosis patients than among general hospital patients. He suggests that smoking "may be an important cause of the breakdown of healed or quiescent respiratory tuberculosis in adults and may account for a considerable part of the excessive male mortality in middle and late life."

A higher mortality rate from lung cancer among smokers than nonsmokers was found not only in the cancer society study but also in an appraisal of several studies made by the Study Group on Smoking and Health organized by the American Cancer Society, the American Heart Association, the National Cancer Institute, and the National Heart Institute.

Another study on the relationship, if any, between smoking and cancer of the lung not only showed a higher death rate from this cause among smokers but also a higher death rate from tuberculosis. This was a survey among British doctors made by the British Medical Research Council.

The council found that chronic bronchitis, peptic ulcer, and pulmonary tuberculosis show a "steady increase in mortality from nonsmokers to heavy smokers" but that only with chronic bronchitis was the difference statistically significant. As for lung cancer, the British study revealed that deaths rose from 0.07 per 1,000 among nonsmokers to 0.47 per 1,000 in light smokers and to 1.66 per 1,000 in heavy smokers.

The council concluded that a study of the smoking habits of other large groups of people would show that there are more deaths from lung cancer among smokers than nonsmokers; that the death rate goes up among heavy smokers, as compared with nonsmokers; and that the cigarette would be at fault more often than the pipe. However, the council held out hope for those who break the smoking habit by predicting that rates would probably be lower for those who stopped smoking than for those who continued to smoke. The American Cancer Society study also indicated a lower death rate among ex-smokers than for those who keep up the habit.

Since most of the evidence linking smoking and lung cancer is of a statistical nature, it cannot be considered conclusive, in the opinion of Dr. Clarence C. Little, chairman of the scientific advisory board of the Tobacco Industry Research Committee, which was established by the tobacco industry to study the problem.

"No convincing clinical or experimental evidence has yet been brought forward that cigarette smoking is the positive cause of lung cancer," according to Dr. Little, who recently said that more research is needed before the cause of lung cancer can be determined.

Mississippi Valley

Wide range of medical and public health topics discussed at Omaha meeting

More than 700 physicians, professional public health workers, and volunteers from 12 states attended the 44th Mississippi Valley Conference on Tuberculosis in Omaha, October 10-12. The annual meeting of the Mississippi Valley Trudeau Society was held concurrently.

Dr. Joseph B. Stocklen, controller of tuberculosis, Cuyahoga County, Ohio, and vice president of the American Trudeau Society, received the conference's highest award—the Dearholt Medal, presented annually for an outstanding contribution to tuberculosis control.

In addition to a wide range of general public health sessions, a full day was devoted to the medical program.

Other conference highlights included a report on the U.S. Public Health Service study on the use of isoniazid in preventing complications in children with primary tuberculosis, and a mock legislative session in which a hundred people participated as "senators," "representatives," and "witnesses."

New officers of the conference are Delmar R. Serafy, president; Dr. Joseph B. Stocklen, president-elect; Richard L. Lea, first vice president; Dr. Martin J. FitzPatrick, second vice president; and John Egdorf, secretary-treasurer.

The new Mississippi Valley Trudeau Society officers are Dr. Harold G. Curtis, president; Dr. J. A. Stocker, president-elect; Dr. William M. Spear, vice president; and Dr. Winthrop N. Davey, secretary-treasurer.

Case Finding: Key to TB Control

by Herbert R. Edwards M.D.

Dr. Edwards is associate professor of public health and medicine, Yale University School of Medicine, and consultant in tuberculosis control, Greater New Haven Area Tuberculosis Advisory Commission. From 1947 until 1955, he was executive director of the New York Tuberculosis and Health Association. Prior to that, he was director, Bureau of Tuberculosis, New York City Department of Health. He is also a former director of the National Tuberculosis Association. Dr. Edwards' article was solicited by the Committee on Medical and Public Relations of the American Trudeau Society.

Since No Foolproof Test Exists to Detect Tuberculosis, We Must Use All Our Available Techniques and Skills to Find New Cases

Because tuberculosis is a communicable disease, case finding is the key to its prevention and ultimate control. To find people infected with the tubercle bacillus requires our utmost ability in using available diagnostic tests and skills.

The most certain method of diagnosing tuberculosis is by recovering the tubercle bacillus from the bodily secretions or tissues. Since the great majority of cases are found in the chest cavity, our efforts over the years have, logically, been directed at developing better ways of visualizing the contents of the chest cavity and of examining sputa or gastric washings.

No Foolproof Test

Many people believe that if we apply enough effort, we can devise a simple and perhaps foolproof test to reveal the presence of tuberculosis. Thus, a reaction to the tuberculin test has been accepted as evidence of tuberculous infection at some time in the individual's life. Similarly, if the shadow found on the X-ray appears to be characteristic of a tuberculous process, a diagnosis of tuberculosis is made and treatment or supervision arranged accordingly.

However, more intensive efforts at diagnosis have shown us that such conclusions are not always true. In fact, we are seeing an increasing number of persons with shadows on their X-rays closely simulating tuberculosis who nonetheless have repeatedly negative tuberculin tests. Also, many have no evidence of infection by bacteriological examination. One has only to read the current medical literature to be convinced that all that appears to be tuberculosis is not really so.

There is no single simple test now, and probably never will be, to detect tuberculosis irrefutably. After seventy years of use, endless debate still goes on about the preparation and standardization of tuberculin, and the mode of administration, dosage, and interpretation of the test. The chest X-ray has been developed to a high degree of perfection as one of our most important diagnostic aids. Yet different observers hotly argue the interpretation of the shadows seen, and one observer may not agree with himself day after day. Our laboratories are reporting with greater frequency atypical forms of acid-fast bacilli.

These doubts and uncertainties have seriously confused many people. Some even doubt the advisability of using the tuberculin test, particularly as a prescreening device in large-scale case-finding programs. The confusion about these three diagnostic tests is unfortunate, leading us to ignore the fact that, despite their imperfections, they have uncovered thousands of cases of tuberculosis. The positive results achieved far outweigh the times when their application has left question and doubt.

Our Task Has Increased

The fundamental principles of case finding have not changed. Our task has been increased, however, because we now have sharper tools to work with and are also aware of many other diseases that closely simulate tuberculosis, even to cavity formation. These must be differentiated in our efforts to find tuberculosis.

The task of case finding has been further increased by our success during the past decades in finding and isolating cases and by the improved living standards of people in general. These factors have caused a very significant drop in the level of infection, certainly among children and young adults, and most likely among older persons as well.

This increasing scarcity of tuberculosis means that we will have to search harder than ever before to find both the infected person and the one who has active disease. And these increased efforts will result in increased case-finding cost. Therefore, we have reached the time long foreseen when our efforts must become increasingly concerned with the presence of infection and, if possible, the approximate time at which it occurs.

No attempt will be made here to elaborate on the specific categories of productive case finding. Such information has been fully documented in manuals and medical literature in general. In any community, the tuberculosis control program, and particularly case finding, must be developed in conformance with the local situation.

Whatever the approach — be they contacts, patients with symptoms, or selected population groups—the important objective must be to utilize every reasonable diagnostic facility to determine the real significance of the origi-

nal lead. Our chief diagnostic aids are the tuberculin test, the chest X-ray, the bacteriology laboratory, and the evaluation of all the information they provide, plus other facts observed by the trained clinician.

There has been a tendency to place undue emphasis on one or the other of these diagnostic facilities without making use of them all. In occasional cases, one test may be adequate, but increasingly the majority of cases require exploration in all four areas before a definitive diagnosis can be made.

Another failure has been the unreasonable amount of time allowed to elapse before an attempt is made to evaluate fully a case with suggestive evidence. This has been one of the major problems in mass chest X-ray programs, where more emphasis has often been placed on numbers X-rayed than on the importance of what is seen in the X-ray.

The tuberculin test, regardless of the controversy that surrounds it, should be utilized in all diagnostic work for tuberculosis. It should also be used as a first screening method among children in high school and preferably in college, since the level of infection is steadily declining in these groups.

The most reliable test is the intradermal, using either PPD or a standard old tuberculin that is available in many communities. The tuberculin test should be routinely employed by all pediatricians on infants and children under their supervision. A single test indicates the condition at that time only; therefore, children should be retested annually. This will reveal those who convert from a negative to a positive status, and will offer an opportunity both to locate the source of infection and to use prophylactic measures to prevent subsequent serious clinical disease.

Similarly, the chest X-ray is one of our most important diagnostic tests. It is one of the least dangerous sources of medical radiation. However, since radiation danger lies in accumulated exposure, the X-ray should be used as sparingly as possible. And since potential damage is greatest during childhood and the reproductive period, we have further reason to prescreen children and young adults with tuberculin before using the X-ray.

In case finding it is important to screen the contacts of a known case of tuberculosis. However, a single examination of a contact is often not sufficient, since it only reveals conditions present at that moment. Thus a child may have a negative tuberculin test because his infection was so recent that allergy has not developed. He should be tested later to make sure no infection has taken place. If the source case is not found in the home, we must search elsewhere for possible associates who may be responsible.

The patient with respiratory symptoms is of equal importance. Often these symptoms are only a part of the total medical profile for which he may have sought medical advice. It is in this area that the family physician can and should be alert to the possibility of tuberculous involvement. The public health agency can help by providing a consultation service for the physician. Certainly all patients with respiratory symptoms should have a routine tuberculin test, a chest X-ray, and bacteriologic examination of sputa or gastric washings.

Laboratory Too Often Neglected

The microbiology laboratory may well become one of the, if not *the*, most important diagnostic aid in the future. Many pulmonary lesions that simulate tuberculosis have been proved, after careful bacteriological study, to be due to other types of infection. In general, our use of the laboratory in case finding has been far from adequate. Many patients with pulmonary lesions have never had bacteriological examination of their sputum or gastric washings, and many who have had one such examination have never had the repeated examinations that are so frequently indicated.

The examination of a smear specimen is no longer adequate. Concentration and culture methods should be routine. Also, facilities should be available for guinea-pig inoculation, as well as other more refined tests to identify clearly the acid-fast organism under study.

Particularly since the introduction of the newer antibiotic therapy in tuberculosis, some of our laboratories are having difficulty in finding tubercle bacilli; and when organisms are detected, they have often been proved to be atypical forms. We do not have an answer for these problems at the moment, but we are able to classify the virulent organisms with considerable success.

More recently, we have turned to the study of biopsied material in trying to arrive at a diagnosis. Some interesting work has been done on scalene node biopsies, as well as biopsy of lung tissue, in endeavoring to arrive at a diagnosis. It is obvious, therefore, that the accurate diagnosis of tuberculosis requires much more time and diligence than ever before. It also points up the extreme care we should take before diagnosing a shadow in a chest X-ray as tuberculous.

The Total Person

If these various tests and examinations are to have any meaning, they must be adequately evaluated along with many other and sometimes obscure facts about the patient. It is at this point that the competent clinician finds a real challenge, and more often than not the true answer. In diagnosing tuberculosis, one must consider the total person as well as the various tests and laboratory results that may be adduced.

Case finding could not be complete without the intelligent persistence of the public health nurse in getting cooperation from the patient and securing much of the information that is needed to understand the individual. To her valuable work should be added that of the social case worker, who adds additional information regarding the patient and his problems and possible ways of approaching them. All of these elements are essential to a diagnosis of tuberculosis and a fair appraisal of the patient's ability to combat his infection or disease as the case may be.

We have in the tuberculin test and the chest X-ray exceedingly sensitive devices to detect tuberculosis. They are not perfect and probably never will be foolproof; yet they have served us well. Despite the controversy that rages, they have in their still imperfect way been valuable beyond words. If to these two tests we add the bacteriological examination, and then put all the evidence in the hands of a competent clinician, we have reason to expect sound judgment.

Children and Isoniazid

A Progress Report on the U.S. Public Health Service Study of the Potentialities of Isoniazid in Preventing Complications Among Children with Primary Tuberculosis

by Frank W. Mount, M.D., and Mrs. Shirley H. Ferebee

Dr. Mount and Mrs. Ferebee are members of the Operational Research Section of the Tuberculosis Program of the U.S. Public Health Service and have planned and directed the tuberculous meningitis prophylaxis study as well as the series of tuberculosis therapy trials in which 26 tuberculosis hospitals throughout the country are participating.

In the early days of isoniazid in the treatment of tuberculosis, Dr. Edith Lincoln and other pediatricians made the observation that children with primary tuberculosis who were treated with the drug did not develop tuberculous meningitis or other serious complications.

Dr. Lincoln, who at the time was head of the children's chest clinic at Bellevue Hospital, New York City, and was directing a study on tuberculosis in children with the aid of a grant from the National Tuberculosis Association, reported her observation to the Committee on Medical Research of the American Trudeau Society at its meeting in the fall of 1953. She added that this was a phenomenon not observed when children with primary tuberculosis were treated with streptomycin.

Watchful Waiting

At this time, pediatricians did not routinely prescribe treatment for children with primary tuberculosis without X-ray evidence of disease. The usual management of such children was one of watchful waiting — of keeping the children under close supervision and beginning specific treatment if any unfavorable change occurred. However, Dr. Lincoln's observation suggested that isoniazid might have value as a prophylaxis, in the sense of preventing serious disease after infection. Further study was clearly indicated.

The U.S. Public Health Service took up the challenge. A cooperative study was organized by the Tuberculosis Program of the PHS in which the participation of pediatricians from all parts of the country was enlisted. The study was inaugurated in January, 1955, with 21 pediatric clinics participating. By June 1, 1957, a total of 2,750 children were under observation by 32 clinical investigators in the continental United States, San Juan, Mexico City, and Toronto.

The plan of the study was simple. It was a control study—that is, one group of children were given isoniazid and another group, similar in all respects to the first, served as "controls," meaning that the children in this group were given dummy pills instead of isoniazid.

Any child under three years of age with a reaction of at least 5 millimeters to the intermediate dose of tuberculin, consisting of five tuberculin units, was eligible for admission to the study. Children over three years of age with a similar tuberculin reaction and, in addition, X-ray evidence of tuberculosis, could also be admitted.

However, any child whose initial condition required treatment, in the opinion of the physician in charge, was to be excluded. The study was to test the efficacy of isoniazid in the *prevention* of complications, not in the *treatment* of primary tuberculosis.

Since this was a strict control study, half of the children admitted were given a daily dose of from 4 to 6 milligrams of isoniazid for every kilo of body weight for one year, and the other half were given a dummy pill, or placebo, which looked just like the isoniazid pill. It was essential that the isoniazid and placebo pills should look, taste, smell, and feel alike. To obtain two indistinguishable products, the real and dummy pills were specially manufactured according to exact specifications. The pills were packaged in identical bot-

Left: If this child receiving the Mantoux test has a reaction of at least 5 millimeters, she will be eligible for the PHS study on the use of isoniazid in preventing complications among children with primary tuberculosis. Right: At the Washington, D.C., PHS clinic, "graduation exercises" are held for each child as he completes a full year of taking his pills every day.

tles, identified only by serial code numbers. The code was kept at the PHS central office of the study, and the physician himself did not know whether he was handing out a bottle of isoniazid or of placebos when he entered a child in the study. Obviously, neither the child nor his parents knew which he was receiving.

Each child in the study was X-rayed at regular intervals and was examined carefully for any sign of progressive disease or complications. If such signs were observed, the physician decided whether the child required chemotherapy. He made his decision without knowing the identity of the pills the child was receiving. If in his opinion the child needed specific treatment, he removed the child from the study and prescribed treatment. Only then did he learn whether the child had been receiving isoniazid or placebos.

Because of the great interest in the possibilities of isoniazid as a prophylaxis, a progress report on the study was made at the meeting of the American Academy of Pediatrics in Chicago in October and, a few days later, at the Mississippi Valley Conference on Tuberculosis in Omaha, Neb., even though some of the children have been observed for less than 12 months.

The results to date provide a preliminary estimate of what may be expected of untreated primary tuberculosis and of what may be gained from an outpatient program of treating primary tuberculosis with a small daily dose of isoniazid for a year.

Of the 2,750 children, 1,394 received isoniazid and 1,356 received placebos. During the time the children were taking pills, serious extrapulmonary complications developed in 5 children receiving isoniazid and in 26 receiving placebos. This is a statistically significant difference and indicates that isoniazid prevented 80 per cent of the complications of childhood TB in the treated group.

The complications in the isoniazid group were as follows: one case of meningitis, two questionable cases of miliary tuberculosis, one case of skeletal tuberculosis, and one case of pleurisy with effusion. In the placebo group there were six cases of meningitis, two cases of tuberculoma of the brain, one case of miliary tuberculosis, five cases of skeletal tuberculosis, seven cases of pleurisy with effusion, one case of tuberculous tonsil, one recurrent phlyctenular conjunctivitis (eye disease), and three children who became clinically ill, with generalized symptoms and signs of tuberculosis.

Adverse pulmonary changes, less serious in nature, occurred in 21 children receiving isoniazid and 34 children receiving placebos. This suggests a favorable effect on the part of isoniazid, although the difference is not statistically significant.

Examination of the group receiving placebos showed that the greatest risk of developing extrapulmonary complications was among children under one year of age, among whom the rates were 33 per 1,000 for those with negative X-rays, 100 per 1,000 for those with positive X-rays showing hilar or paratracheal involvement, and 182 per 1,000 for those with positive X-rays with parenchymal involvement. There was little risk among children between one and six years of age unless they had X-ray evidence of disease. The only two children more than six years of age who developed complications were adolescents with initial parenchymal involvement who developed pleurisy with effusion.

Although only about two-fifths of the children have been observed as long as 18 months, there is no indication that isoniazid merely delayed the appearance of complications. Between the twelfth and eighteenth months, there were two complications among 576 children in the isoniazid group and three among 574 children in the placebo group.

This study, under strict control conditions, would indicate that the treatment of primary tuberculosis with isoniazid is effective in preventing the development of serious complications in certain groups of children infected with tuberculosis. It is too soon to tell whether early prophylaxis with isoniazid will prevent the development of chronic tuberculosis later in life.

Southern Meeting

Regional TB conference draws a record-breaking attendance at Birmingham

The Southern Tuberculosis Conference drew the largest attendance in its history when approximately 750 persons met in Birmingham, Ala., October 2-4.

Mrs. May Pynchon, who retired last year as executive secretary of the Florida Tuberculosis and Health Association, received the Southern Conference award for "her unparalleled record of long and productive efforts in behalf of tuberculosis control."

The theme of the conference was "The Road Ahead," and was explored at the general session by Dr. Floyd Feldmann, medical director of the NTA, and James G. Stone, executive secretary of the NTA, and at several special sessions.

The Southern Trudeau Society, which held its annual meeting at the same time, presented a wide variety of medical papers.

The Alabama Tuberculosis Association also held its annual meeting concurrently with the conference, and many of the delegates attended the association's luncheon meeting, at which Gen. Carlos P. Romulo, the Philippine ambassador to the United States, was principal speaker.

The new officers of the conference are Dr. Perry M. Huggin, president; Bryan Wilson, president-elect; and C. Scott Venable, secretary-treasurer.

The new Southern Trudeau Society officers are Dr. R. B. Turnbull, president; Dr. Arthur A. Calix, president-elect; and Dr. Abraham H. Russakoff, secretary.

ATS Research Grants

Applications to the American Trudeau Society for research grants in tuberculosis and related fields for the year beginning July 1, 1958, should be received by January 1, 1958. Full information and forms may be obtained from the Division of Medical Research, American Trudeau Society, 1790 Broadway, New York 19, N. Y.

1907 Revisited

A Nostalgic Look at the World as It Was 50 Years Ago, When Women Battled for the Vote, the One-Step Was Replacing the Waltz, and Emily Bissell Created the Christmas Seal

by Edward T. Blomquist M.D.

Dr. Blomquist is chief, Tuberculosis Program, U.S. Public Health Service. A native of Illinois, Dr. Blomquist received his medical degree from the University of Chicago and a public health degree from the University of Michigan. He was appointed medical officer in charge of the Arctic Health Research Center, Anchorage, Alaska, in 1951. Upon completion of this tour of duty in 1954, Dr. Blomquist returned to Washington to take up his present position, in which he directs federal tuberculosis control and research activities and coordinates them with activities of other agencies. His article is adapted from a talk he presented at a meeting of the Delaware Anti-Tuberculosis Society.

As the 51st Christmas Seal Sale gets under way, in the year 1957, perhaps it will profit us to look back and try to perceive what kind of world it was in 1907, when Emily Bissell introduced the Christmas Seal to the United States.

Let's use for a while the flash-back technique of the newsreel. Our opening scene would disclose a world in transition from the certainties of the nineteenth century to the insecurities of the twentieth; from Victorian propriety and conservatism to skepticism, experimentation, and political turmoil. Our camera-eye moves on. . . .

Year of Panic and Progress

1907 was a year of financial panic. For more than a year, interest rates on short-term loans had been fluctuating between 10 and 125 per cent. Banks ceased paying off their depositors. Wall Street stopped trading, and scrip was issued in lieu of pay checks.

The Panama Canal was under construction, and San Francisco was still digging out of the ruins of its 1906 earthquake.

Carry Nation was busy smashing saloons with her trusty hatchet.

The teen-agers of the day favored the one-step, which pretty largely consisted of grabbing your girl and running her backward at top speed to the far end of the hall.

Women were placed on idealistic pedestals and admired like monuments. One wonders at the low divorce rate, for, after all, no woman wants to be taken for granite!

Theodore Roosevelt was busting the trusts and wielding the big stick. In the White House, his children were literally making the place jump.

Women were battling for the right to vote, and Senator "Pussyfoot" Johnson, of California, was the scourge of the "booze peddlers."

Electric power was scarce for domestic use. Most homes were lighted by kerosene lamps. Gaslight was still symbolic of prestige.

In Nova Scotia, Marconi talked by wireless to Ireland.

Pure food and drugs, safe milk and water, were not uniformly pure or safe. You took your chances, and the results were sometimes disastrous.

People tried to cure appendicitis with poultices. Cancer was rarely diagnosed. Tuberculosis, it was believed, "ran" in families, and little could be done about it. Many a death certificate showed heart failure as principal cause when paresis would have been the correct term. Thousands of infants died shortly after drawing their first breath. Women approached childbirth unsure that the event meant a new life or their own death.

The Battle Begins

In Pennsylvania, Dr. Lawrence Flick was fighting to get tuberculosis recognized as a reportable infectious disease.

In Wilmington, Delaware, Emily Bissell was organizing the first Christmas Seal campaign.

Dr. Edward Trudeau and Dr. Hermann M. Biggs, of New York, joined Dr. Flick and began to stir the imagination of the people. As early as 1888, Dr. Flick had asserted that tuberculosis was infectious and not an inherited condition caused by "bad blood" in some families. Dr. Biggs, working through state and city offical agencies, succeeded in gaining legislation that made it legally mandatory for physicians to report cases of tuberculosis to health departments. Dr. Trudeau was proving in New York that tuberculosis could be cured.

Dr. Joseph P. Wales, of Wilmington, one of the earliest pioneers in the attack upon "consumption," was also demonstrating that tuberculosis could be cured. Dr. Wales and a few other Wilmington physicians established and maintained near the Brandywine River an open-air shack for the tuberculous. Built on land leased from Alfred I. du Pont for one dollar a year, it sheltered eight charity patients. They were cared for by one nurse, herself tuberculous, and a cook.

These men, slowly but surely, and against powerful opposition, began to break down the age-old superstitions and prejudices concerning tuberculosis. Generally, people felt that the disease was an "act of God," a divine measure calculated to limit a too prolific population. One colleague of Flick's, in responding to a plea to join in an organized campaign against tuberculosis, replied, "You're wasting your time. After all, you don't crusade against the Deity."

Nevertheless, people everywhere were ready to join a crusade against a disease that killed 100,000 men, women, and children a year—more than deaths from diphtheria, smallpox, typhoid, and scarlet fever combined. Yes, the

people were ready to join the fight if someone would show them how. Flick, Biggs, and Trudeau showed them how, and Emily Bissell gave them a symbol to march by—a symbol of power, a penny stamp, a seal of hope.

As we look back on the life of Emily Bissell, we can only be humbly grateful that she lived and worked when she did. Influential leaders do not always appear when they are needed. She was a pioneer, not only in the campaign against tuberculosis, but in a great variety of civic and charitable activities in Wilmington and in the State of Delaware. She started the West End Reading Room in 1889, which developed the first free kindergarten, the first children's playground, the first better babies' demonstration, the first Boys' Brigade (forerunner of the Boy Scouts), and the first free gymnasium for boys in Delaware.

Miss Bissell was instrumental in putting through the first Child Labor Law in Delaware, and served on the first Child Labor Commission. She was one of the organizers of the Children's Bureau, and served on its board until her death.

She was the first president of the Consumers League, and aided the passage of the first law limiting the hours of women in industry. She helped establish the Delaware chapter of the American Red Cross in 1904, and was its secretary for many years.

The Seal Is Born

In the midst of these and many other responsibilities, Miss Bissell turned her energies and imagination to raising money for the now famous Brandywine Shack. Three hundred dollars was needed to keep it from closing. Miss Bissell remembered a Danish Christmas stamp and determined to adopt it to raise funds for her project. Seeking help to publicize her idea, she was consistently rebuffed. People generally thought it absurd to try to raise considerable sums by selling penny stamps.

Not discouraged, she went to Philadelphia to enlist the aid of the Sunday editor of the *North American*, Philadelphia's leading newspaper, which had pioneered in the antituberculosis cause and was widely read in Delaware. The editor refused to publicize her project. He was shocked by the thought of coupling Christmas with the worst of diseases.

Then, on impulse, Miss Bissell sought out Leigh Mitchell Hodges, the writer of the daily column "The Optimist." Shown a sheet of the stamps, he became enthusiastic and sold the editor on the idea. As a result, the first Christmas Seal Sale produced $3,000—ten times the sum Miss Bissell had hoped to raise.

As the years went by, Miss Bissell's stamp increased in popularity. In 1908, receipts from the first national Seal Sale amounted to $135,000. In 1956, over $26,000,000 was realized.

The 1958 NTA, ATS, and NCTW Annual Meetings will be held in Philadelphia, Pa., May 18-23. Full information about hotel reservations appeared in the November *Bulletin*. Reservations should be sent directly to the hotel of first choice on the form which appeared in that issue; additional forms may be obtained from the National Tuberculosis Association, 1790 Broadway, New York 19, N.Y.

The 1908 and 1909 Christmas Seal Sales were sponsored by the American Red Cross. In 1910, the National Tuberculosis Association was invited to join forces with the American Red Cross and to manage the annual campaign. In 1919, the National Tuberculosis Association became the Christmas Seal's sole sponsor. The 1919 Christmas Seal carried the insignia of the American Red Cross and the double-barred cross of the National Tuberculosis Association. The double-barred cross has been on all of the ensuing Christmas Seals.

In 1942, Emily Bissell was awarded the Trudeau Medal of the National Tuberculosis Association, the first nonprofessional worker to receive this award since it was inaugurated in 1925.

In 1945, she was honored by the State of Delaware when the main building at Brandywine Sanatorium was dedicated in her honor, thereafter called the Emily P. Bissell Building.

Miss Bissell was president of the Delaware Anti-Tuberculosis Society from 1909 until her death.

Miss Bissell's achievements constitute one of the enduring landmarks in the history of the organized crusade against tuberculosis. Her undeviating devotion to what she believed to be right and true, her force as a leader and organizer, shall always stand as her memorial. To it we can neither add nor subtract.

Pioneers deserve our praise; leaders earn our respect. But in honoring them we should remember that their work would have come to nothing without the enthusiastic support and energetic cooperation of the people. It is characteristic of American life for like-minded citizens to form groups designed to benefit the lot of the whole community. The people do not wait for government to do something before they act. They take the initiative in fostering ideals and achieving positive social goals. Government enters in only at the behest of citizens. In consequence, our laws are the expressions of our will; our institutions are the creations of our desires.

Voluntary tuberculosis associations are excellent examples of American democratic action. Without such groups and the united forces of citizen opinion and action, present achievements in the control of tuberculosis could not have been realized. Our strong federal, state, and local official agencies could not have come into being and could not have grown to their present stature. Our American willingness to cooperate wholeheartedly toward the achievement of desirable goals and the people's generosity in terms of money and energy and time have enabled us to succeed in the control of a devastating disease like tuberculosis as they have permitted us to prosper as an economy.

In the years ahead, as we face the grave challenge of rooting out and casting aside forever a disease that has plagued man from the beginning of recorded history, the support and cooperative encouragement of people everywhere will bring victory. And in that march forward, the little stamp that Emily Bissell issued fifty years ago will serve as both device and flag.

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PEOPLE

Dr. Reginald Myers Atwater, executive secretary of the American Public Health Association since 1935, died on October 18, at the age of 65. From 1927 until he joined the APHA, Dr. Atwater had been commissioner of health for Cattaraugus County, N.Y. He was managing editor of the *American Journal of Public Health,* a special consultant to the U.S. Public Health Service, and a board member of the National Health Council.

Harold McGee, assistant executive director of the Virginia Tuberculosis Association since 1955, died on October 10. Mr. McGee had previously served the association as director of rehabilitation and director of local public health services. Earlier, he had been rehabilitation consultant for the Wisconsin Anti-Tuberculosis Association.

Dr. John D. Porterfield has been appointed Deputy Surgeon General of the U.S. Public Health Service, and will act as Surgeon General in Dr. Leroy E. Burney's absence. Dr. Porterfield has been assistant surgeon general since March of this year.

Nelson H. Cruikshank, a member of the board of directors of the National Tuberculosis Association and director, Department of Social Security, AFL-CIO, has been appointed a member of a 12-man advisory council by Marion Folsom, Secretary of Health, Education, and Welfare, to review the long-range financial position of the social security system.

Mrs. Margaret K. Farrand, widow of Dr. Livingston Farrand, who was managing director of the National Tuberculosis Association from 1905 to 1914, died on October 10.

Miss Mary Jane Williams, nursing education consultant for the Tuberculosis Nursing Advisory Service of the National League for Nursing, has resigned to marry Mervyn Ewart. She will be succeeded on January 2, 1958, by **Miss Ruth Leininger,** who is an instructor in tuberculosis nursing at the Colorado University School of Nursing.

Dr. Charles Trembley, a former resident physician of the Trudeau Sanatorium, at Saranac Lake, N.Y., died on October 20.

Mrs. Helmer Lindstrom has been appointed executive secretary of the Clatsop County (Ore.) Tuberculosis and Health Association, replacing **Mrs. Archie Thompson,** who resigned.

Mrs. Oressa M. Knee, R.N., executive secretary of the Grant County (Ind.) Tuberculosis Association for the past 20 years, died on August 23.

Miss Patricia Gray, formerly joint executive secretary of the Morgan County (Ohio) Tuberculosis and Health Association and of the Washington County (Ohio) Tuberculosis and Health Association, has been appointed field counselor for the Ohio Tuberculosis and Health Association.

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